

Effects of the COVID-19 pandemic on prehospital care for stroke and transient ischaemic attack: A systematic review and meta-analysis

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Policy Brief

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Executive Summary

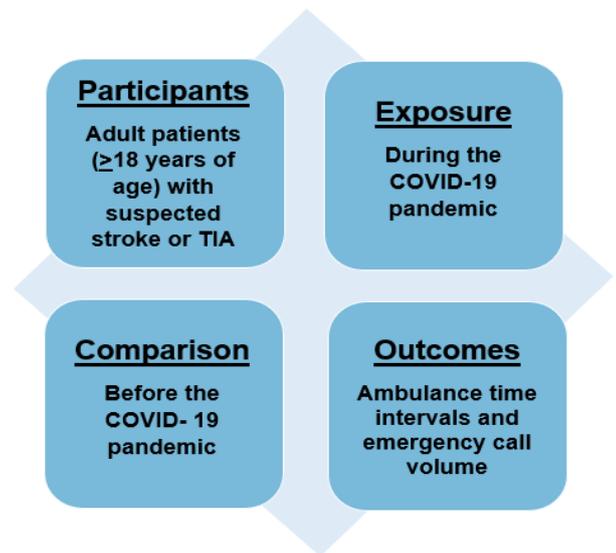
Stroke and transient ischaemic attacks (TIA) are particularly vulnerable to pressures on healthcare delivery as they require immediate diagnosis and treatment. Prehospital stroke care aims to shorten time to diagnosis and treatment. The prehospital phase of healthcare is defined in a World Health Organisation report as the period before arrival at a hospital, clinic, and other fixed healthcare setting. However the global impact of the COVID-19 pandemic on prehospital emergency care for stroke/TIA is still largely unknown. This review found an **increase in response time** and **total prehospital time** and **decrease in call volume** during COVID-19. Furthermore heterogeneity exists in international ambulance terms terminology and definitions.

Why did we carry out this review?

Prompt recognition of symptoms and contact with EMS is a crucial component of stroke emergency care. Minimizing time to treatment and prehospital delays reduces stroke-related morbidity and mortality. COVID-19 restrictions were introduced globally in response to the pandemic, resulting in major societal changes including to health care provision and access. Thus, acute stroke and transient ischaemic attack (TIA) care as time critical conditions are potential indicators of impact of the pandemic on care access and delivery.

What did we find?

- Overall, mean **response time** (call received to ambulance arrival on scene) and **total prehospital time** (call received to arrival of ambulance at hospital) increased during COVID-19, whilst emergency call volume decreased for suspected stroke and TIA.
- Furthermore, the review highlights the heterogeneity of international ambulance times terminology and definitions.



Which key stakeholders did we involve?

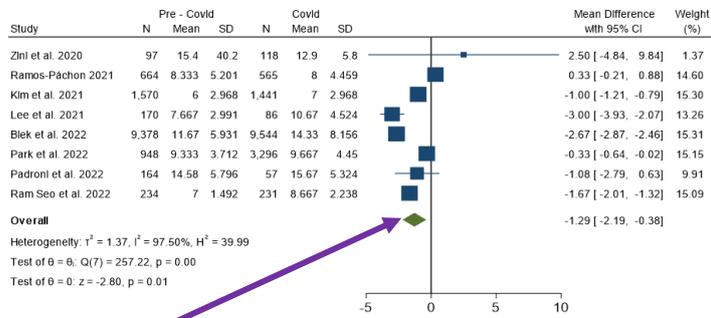
- Patient/caregiver voice: Five stroke survivors were involved from research question development to dissemination.
- Clinical/academic/policy maker voice: Members of the National Ambulance Service, Ireland, Clinical Directorate and a Consultant Neurologist were involved from research question development to dissemination.



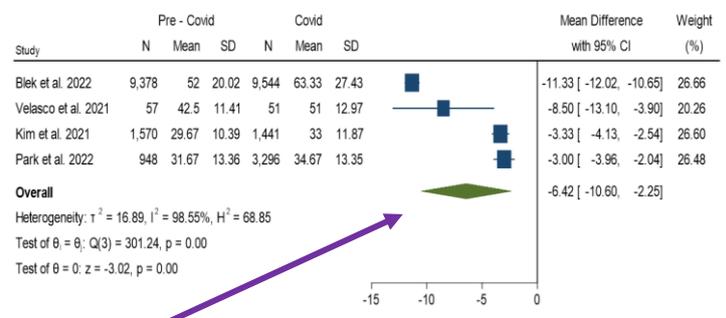
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1.29 min ↑ in mean response time during COVID-19



6.43 min ↑ in mean total prehospital time during COVID-19

What did we do?

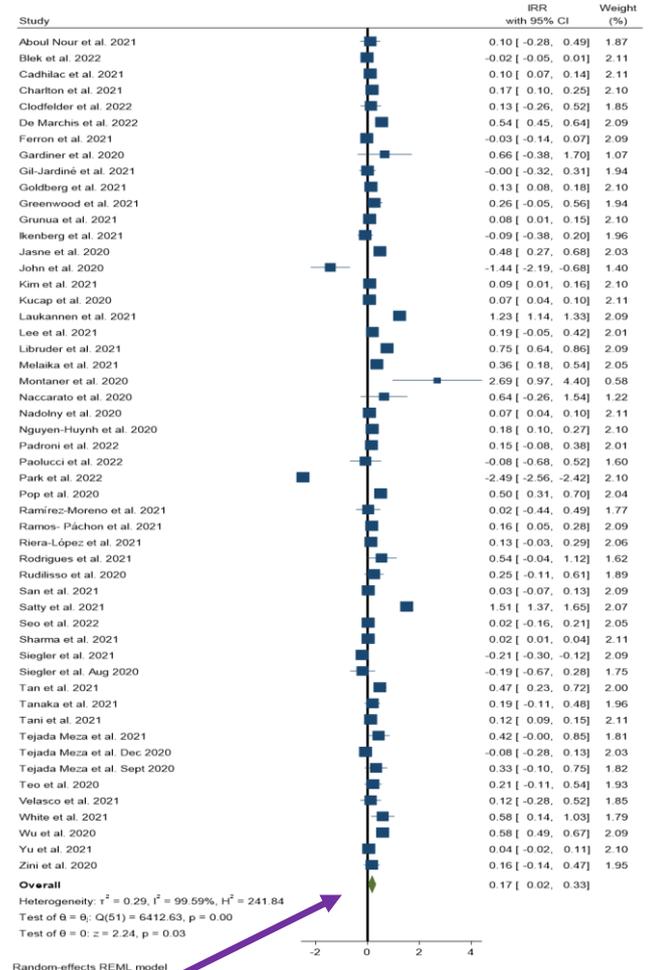
- We searched six electronic databases from 2019 to 30th May 2022 and re-ran the search on 26th April 2023 to check for any new articles.
- We synthesized the evidence in previously published peer-reviewed papers on the impact of the COVID-19 pandemic on ambulance times and emergency call volume for adults with suspected stroke and TIA.
- Due to international variation in prehospital terminology we included expert stakeholders throughout the process.

Conclusion

Overall, this research is focused on the impact of a "shock" like a pandemic on the prehospital phase of care for time-sensitive conditions, like stroke and TIA. However, prehospital services come under immense and sustained pressure every winter. Thus, this research also has relevance for routine prehospital service planning.

Recommendations

- Most papers focused on **one pandemic wave**. Research on **multiple waves** would facilitate the identification of any persistent effects and patterns.
- In situations like pandemics, and other healthcare crises we need to focus on balancing healthcare provision for non-communicable diseases, whilst implementing practices to reduce viral spread.
- This may include further patient awareness campaigns to encourage those with suspected stroke and TIA symptoms to alert emergency services even during healthcare crises.
- Harmonisation of **international ambulance times terminology** and **definitions** would facilitate international benchmarking and research.



Pre-COVID-19 call volume was 1.19 times (1.02 to 1.39) the incidence rate of the COVID-19 period

Acknowledgements

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Read the full paper [here](#)